

TITLE: EFFECTS OF PRE-EXPOSURE TO NON-TARGETED DRUGS ON *Stenotrophomonas maltophilia* SURVIVAL

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ABSTRACT:

The ability of bacteria to adapt and survive antibiotic exposure, therefore leading to therapeutic failure, represents a major public health problem. It is known that previous contact with antibiotics may facilitate this adaptation. However, few studies highlight the bacterial effects caused by prior exposure to drugs that are not targeted to that specific bacteria. In this study, we investigated if the prior use of daptomycin (DAP) and vancomycin (VAN), commonly used to treat gram-positive infection, increases *Stenotrophomonas maltophilia* survival, a nonfermentative gram-negative bacilli, when in contact with its recommended drug treatment. We exposed the reference strain *S. maltophilia* ATCC 13637 to VAN and DAP, separately, in nutrient broth, for 180 min at 37 °C and 180 rpm. After that, the cultures were spotted on Mueller Hinton (MH) agar plates containing levofloxacin (LVX; 0.03125 - 2 µg/mL), ceftazidime (CAZ; 1 – 8 µg/mL) and sulfamethoxazole/trimethoprim (SXT; 0,0625/1,1875 – 1/19 µg/mL) to qualitatively verify the survival rate after 92 h incubation period, at 37 °C. For viable count, we exposed the induced samples to MH broth supplemented with LVX. We also performed the Minimum Inhibitory Concentration (MIC) test to evaluate susceptibility of pre-exposed strains to LVX, SXT and CAZ. Survival rate in agar and broth supplemented with LVX showed higher growth of DAP and VAN- induced samples, without altering their MICs. Overall, we observed that, somehow, previous exposure of *S. maltophilia* to DAP and VAN increased survival rate of *S. maltophilia* in the presence of LVX; in spite of that, the samples continued to be sensitive to this antimicrobial.

Keywords: daptomycin, vancomycin, *Stenotrophomonas maltophilia*, survival mechanisms

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